2.1 limit of a function

$y = 3x^2 + 2x$ slope of tan at $x = 1$

$x_1 = 1$

$y_1 = 5$

$x_2 = 1+h$

$y_2 = 3(1+h)^2 + 2(1+h)$

$$m_{sec} = \frac{[3(1+h)^2 + 2(1+h)] - 5}{h}$$

$$= \frac{3(1+2h+h^2) + 2 + 2h - 5}{h}$$

$$= \frac{3 + 6h + 3h^2 + 2 + 2h - 5}{h} = \frac{8h + 3h^2}{h}$$

$$m_{sec} = 8 + 3h$$

$$m_{tan} = \lim_{h \to 0} 8 + 3h = 8$$

$\lim_{x \to a} f(x) = L$ what does this mean

as x approaches a,

$f(x)$ approaches L

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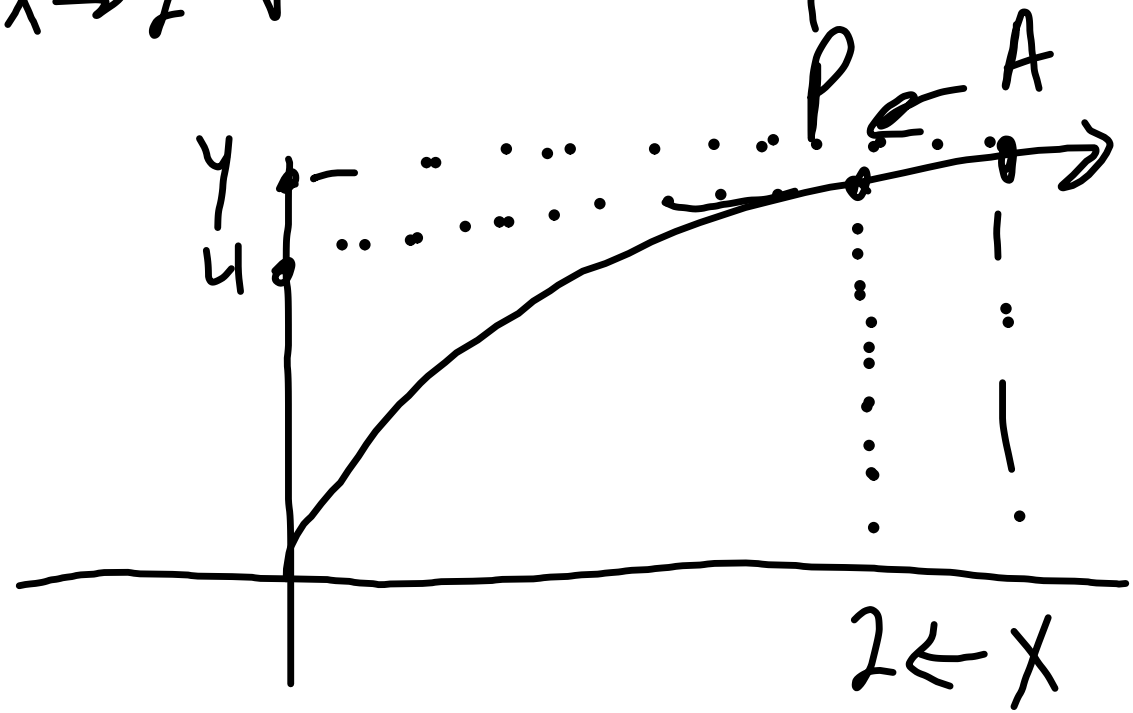
when x is close to a

$f(x)$ is close to L

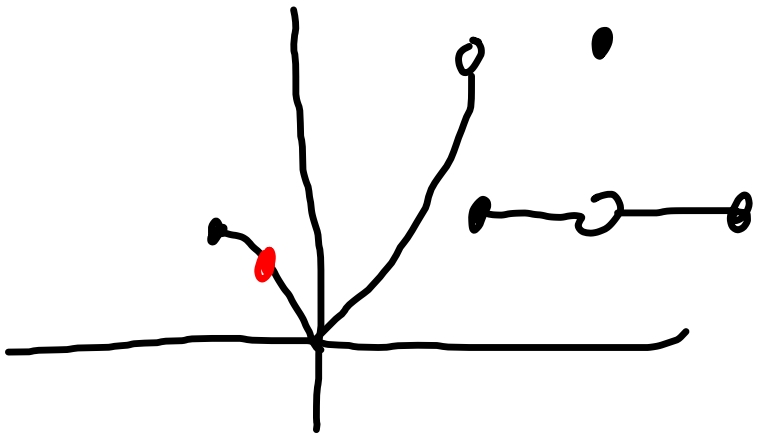
$$\lim_{x \to 2} \sqrt{x+14} = 4$$



as $x \to 2$

$\sqrt{x+14} \to 4$

38.



a) $\lim_{x \to -1^+} f(x) = 1$

c) $\lim_{x \to 2} f(x) = 2$ false

e) $\lim_{x \to 1^+} f(x) = 1$ true

f) $\lim_{x \to 1} f(x)$ dne true